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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/664,394	09/16/2003	Amy G. Graham	EM-1997	4444
5179	7590	03/25/2005	EXAMINER CHIAM, DINH D	
PEACOCK MYERS AND ADAMS P C P O BOX 26927 ALBUQUERQUE, NM 871256927			ART UNIT 2883	PAPER NUMBER

DATE MAILED: 03/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/664,394

Applicant(s)

GRAHAM ET AL.



Examiner

Erin D. Chiern

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 16 September 2003.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-4, 6-14 and 16-20 is/are rejected.  
7) ☐ Claim(s) 1, 11, 5, 15 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 9/16/03 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/14/04.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

This office action is responding to the application filed on September 16, 2004.

#### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) submitted on June 14, 2004 is being considered by the Examiner.

#### ***Drawings***

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, ball lens limitation in claim 2 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will

Art Unit: 2883

be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

3. The disclosure is objected to because of the following informalities: Page 2, line 24 has an unclear word.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 1 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The preamble --*A variable field of view*-- is objected to because the claimed invention does not clearly state the mean for *varying* the field of view.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4, 6-7, 9-11-14, 16-17, and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korein (US 2002/0096629 A1) in view of Ho (US 6108135).

Art Unit: 2883

8. Korein teaches an omni-directional fiber optic image mapping system comprising a forward curved optical element (Fig. 4, 26) a rearward optical element (24) having a backward curving (claim 23), a curved focal surface, and a mean for conveying an image (14) on said curved focal surface to a flat detector (16). However, Korein does not teach the forward curved optical element comprises a ball lens, or the rearward optical element comprised a dynamic index that is made of electroactive hydrogel.

9. Although Korein do not teach the forward curved optical element as being a ball lens, but Korein incorporated the entire reference of Migliaccio (US 5311611) in its entirety and Migliaccio teach a ball lens is optically coupled to the ends of a plano-concave surface for the purpose of improving resolution and minimizing spot-size.

10. Ho teaches using axial GRIN to focus all light to a single point during the pre-converged stage of the optical lens assembly for the purpose of reducing non-normal rays from refracting depending on the angle of incident since refracted non-normal rays reduce the resolution of the image.

11. Since Korein and Ho are both from the same field of endeavor, the purpose disclosed by Ho would have been recognized in the pertinent art of Korein.

12. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ an optical element within the lens assembly to reduce the refraction of the non-normal rays such that better resolution of the image is obtainable.

13. Claim 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Korein and Ho as applied to claims 1-4, 6-7, 9-11-14, and 16-17, and 19-20 above, and further in view of Mukherjee et al. (Applied Optics, 1992).

Art Unit: 2883

14. Korein and Ho teach an omni-directional fiber optic image mapping system comprising a forward curved optical element (Fig. 4, 26) a rearward optical element (24) employing axial GRIN optical element having a backward curving (claim 23), a curved focal surface, and a mean for conveying an image (14) on said curved focal surface to a flat detector (16). However, Korein and Ho do not teach a rearward optical element comprised a dynamic index that is made of electroactive hydrogel.

15. Mukherjee et al. teach the process of depositing gradient index anti reflective film employing the sol-gel process. It is known in the art to employ a mask such that the desired gradient direction (ie., axial or radial) can be achieved.

16. Since Korein, Ho, and Mukherjee et al. are all from the same field of endeavor, the purpose disclosed by Mukherjee et al. would have been recognized in the pertinent art of Korein and Ho.

17. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to apply the gradient index film onto the optical element rather than designing the lens assembly with a prefabricated gradient index optical element for the flexibility of choosing between radial gradient index or axial gradient index.

***Allowable Subject Matter***

18. Claims 5 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

*Conclusion*

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Hall and Baker teach similar assembly of optical elements, which achieve dual field of view, and depth of field optical lens. Also, since the base claims are very broad, Minato and Sinclair et al. references may also read upon the limitations of the base claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin D. Chiem whose telephone number is (571) 272-3102. The examiner can normally be reached on Monday - Thursday 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin D Chiem  
Examiner  
Art Unit 2883

EDC



Frank G. Font  
Supervisory Patent Examiner  
Technology Center 2800